WHAT IS CLAIMED IS:

1. An expansion projectile for firearms, comprising one single piece of material from the copper class, or copper alloy, presenting a generally cylindrical shape with a fore portion generally of conical or ogival shape, and a bottom portion with a rounded or truncated conical portion; said projectile featuring an internal cavity opened towards the front end of the projectile, being said cavity symmetrically centered regarding the longitudinal axis of the projectile; being the radius (r) descriptive of a circumference that establishes a circular cross section perpendicular to the central longitudinal axis of the projectile and (d) descriptive of the abscises of a generic point which lies in said longitudinal axis of the projectile, being the shape of the internal cavity of the projectile described by the values of (r, d) taking as origin for said coordinates system the point of the longitudinal axis of the projectile which lies in the same plan that contains the forward most section of the projectile, with d = 0 corresponding to the front end of the projectile and the maximum value of d corresponding to the bottom of the cavity; characterized by the fact that

- the maximum value of r is situated between the positions where the value of d = 0 and d = $d_{maximum}$;

- said radius r decreases progressively towards the front end where d = 0;

- said radius r decreases progressively towards the bottom of the cavity where d = $d_{maximum}$

- where d = 0 (front end of the projectile) said radius r ranges from 10% to40% of the caliber of said projectile;

- the maximum value of said radius r of said internal cavity ranges from 10% to 40% of the caliber of the projectile;

- where d = $d_{maximum}$ (bottom of the cavity) said radius r ranges from 0 (flat surface) to 35% of the caliber of said projectile (rounded bottom);

- $d_{maximum}$ ranges from 0.50 to 2.5 times the caliber of said projectile;

- the transversal and longitudinal cross-sections of said cavity present radial symmetry regarding the longitudinal axis of said projectile; being said cavity cross-section of a circular or other regular geometrical figure shape.

2. The expansion projectile as defined in claim 1, in which the external surface features a plurality of lengthwise grooves or slits parallel to the central longitudinal axis of the projectile and symmetrically distributed around it, being said grooves or deformations obtained by pressure forming, when the fore portion is partially closed in a die to form the generally conical or ogival shape of the fore portion of projectile; being said grooves or slits preferably provided in a number of 3 to 9, extending longitudinally from the front open end to the generatrice where the case mouth is crimped; being said projectile characterized by the fact that the total cross sectional area of said grooves or slits ranges between 0.2 and 5% of the total cross sectional area of the projectile; said grooves or slits preferably featuring an essentially triangular cross-sectional shape; and being the length of the said grooves preferably more than 5% of the length of the internal cavity of said projectile.

3. The expansion projectile as defined in claims 1 or 2, characterized by the fact that the internal cavity is obtained by means of cold forming a raw material cylinder blank obtained by cutting a wire or rod preferably by shearing of suitable material, such as copper or copper alloy, applying a single or more strikes of suitable punches on the cylinder blank creating a deformation which is axially symmetrical to the longitudinal axis of said cylinder blank, said obtained final deformation forming a preliminary internal cavity presenting a larger radius r toward the front end of the projectile where d = 0, with the radius r of said preliminary internal cavity varying preferably as:

- the maximum value of the radius r of said preliminary internal cavity is situated where d = 0, ranging preferably from 95% to 70% of the radius of said cylinder blank;

- With a cylindrical portion, situated between the front end and the bottom of the cavity, the length of said cylindrical portion ranging from zero to twice the diameter of said cylinder blank;

- The radius r of said preliminary internal cavity decreasing from where d = 0 to d = $d_{maximum}$ where the radius r ranges from 35% of the diameter of said cylinder blank to r = 0;

- The maximum value of d ranges from 0.50 to 2.5 times the diameter of said cylinder blank.

4. Manufacturing process for the expansion projectile as defined in claims 1, 2 or 3, being said final operations finishing and adjusting operations, respectively finishing the shape, calibration, annealing and superficial finishes, that are performed in a way that is well known by those skilled in the art of ammunition manufacturing; being said manufacturing process characterized by the fact that the manufacturing sequence comprises the following successive steps:

- generation of a cylinder blank of proper weight and diameter by means of cutting, sawing or shearing a wire or rod of suitable material, preferably copper or a copper alloy;

- cold forming by one or more strokes with punches of single or progressive circular or polyhedral cross-section hitting the cylinder blank positioned in a die, totally or progressively creating a preliminary internal cavity without altering the external cylindrical shape of the metal piece;

- execution of a plurality of grooves or slits and preliminary shaping of the fore portion of the projectile, thus modifying the radius of the cavity obtained on step b above and reducing this radius by at least 7%, and modifying the shape of the preliminary internal cavity by displacement of the main diameter from the front end to a position between the front end and the bottom of the cavity.